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Department of Lands, Forests and Mines:

Ontario

Bulletin No. 27

OF THE

ONTARIO BUREAU OF MINES

KOWKASH GOLD AREA

By P. E. HOPKINS

Accompanied by the following maps:

Map No. 24c—Part of Thunder Bay District showing the Kowkash Gold Area

Map No. 25a—Kowkash Gold Area

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TORONTO

To the Honourable G. H. Ferguson,

Minister of Lands, Forests and Mines.

Sir,—I beg to hand you herewith Bulletin No. 27 of the Bureau of Mines, being a report on the Kowkash Gold Area by Mr. P. E. Hopkins, of the Bureau's geological staff.

The discovery in August, 1915, of quartz containing a fine surface showing of free gold has naturally been followed by a demand for information regarding the geological and mineralogical features of the Kowkash area, and it is with a view of meeting this demand as far as at present possible, and of rendering it available for the use of prospectors at the opening of the season of 1916, that the Bulletin has been prepared and is now being published.

No detailed examination of the rocks has been possible since the discovery of gold was made, and the few explorations heretofore made have not provided much material which can be drawn upon, consequently the particulars contained in the Bulletin are admittedly scanty. But the fact that gold has been found so far removed from previously known fields, and the similarity of the Kowkash rock formations to those of proven worth, demonstrate anew the advisability of closely prospecting all the Keewatin exposures of northern Ontario.

I have the honour to be, Sir,

Your obedient servant,

Thos. W. Gibson,

Deputy Minister of Mines.

Bureau of Mines,

Department of Lands, Forests and Mines,

Toronto, 10th February, 1916.

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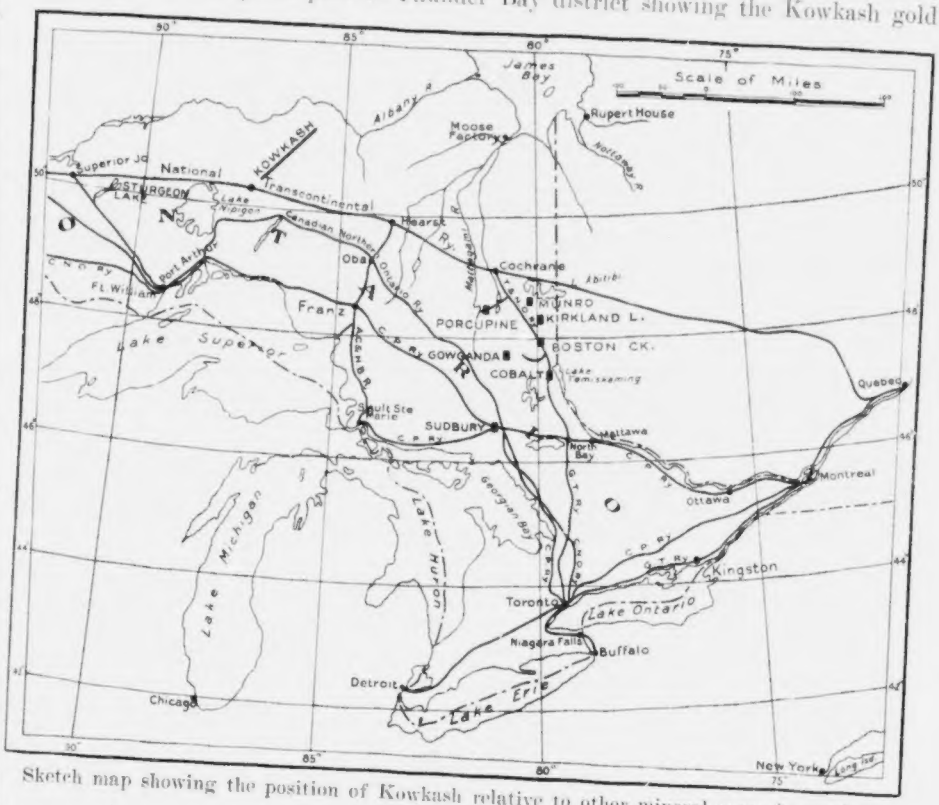
KOWKASH GOLD AREA

By P. E. HOPKINS

Introduction

In accordance with instructions received from Thos. W. Gibson, Deputy Minister of Mines, the writer left Toronto on September 6th, 1915, and spent six days in making a preliminary investigation of the recent gold discovery near Kowkash, a station 297 miles west of Cochrane on the National Transcontinental railway. A preliminary report[1] was published in the Canadian Mining Journal, Toronto, and a map[2] of part of Thunder Bay district showing the Kowkash gold



Sketch map showing the position of Kowkash relative to other mineral areas in northern Ontario.

area accompanied Part I, Volume 24, Report of the Ontario Bureau of Mines, 1915. The writer revisited the area in the latter part of October, 1915, and spent another six days in examining the geology and all the known discoveries. The Kawashkagama river below Johnson creek, part of O'Sullivan lake, and the greater part of the route along the railway between Johnson creek and Robinson lake, 25 miles west, were examined. Accompanying this report is a map of the area on a scale of four miles to the inch showing the topography, geology and location of the prospects.

[1] Kowkash Gold Area by P. E. Hopkins, Can. Min. Jour. Oct. 1, 1915, pp. 583-4.
[2] Map No. 24c, Ontario Bureau of Mines.

Location

The Kowkash gold area is situated in the central part of the district of Thunder Bay, Ontario, northeast of Lake Nipigon, and is traversed by the National Transcontinental railway. Kowkash station is 297 miles west of Cochrane at about latitude 50° 15′ north and longitude 87° 15′ west.

Early Exploration and History

A spectacular gold find was made by E. W. King Dodds on August 21, 1915, on claim T.B. 2424, nine miles northwest of Kowkash, near Howard falls, on the river Kawa-kash-kagama, which signifies "sparkling water". This name has been shortened to Kawashkagama by the Geographic Board. The railway station called "Kowkash"—an abbreviation or corruption of Kawashkagama—has given its name to this area. The region has so recently been opened up by the National Transcontinental railway that the geological reports have been for the most part of a preliminary character and confined to the more important canoe routes.

Kowkash station, National Transcontinental railway, September, 1915.

That part of the Kawashkagama river near the gold find is described by Robert Bell, in the annual report of the Geological Survey of Canada for 1870-1, p. 342; also, by party number 5 in the report on the Exploration of Northern Ontario, issued by the Ontario Department of Crown Lands, in the year 1900, p. 156. In the latter report, E. V. Neelands, geologist, blazed the way for the prospector when he stated "Huronian [Keewatin] rocks, mainly chlorite and other soft green schists, occur in the Kawa-kash-kagama river for about four miles below the Wawong portage to the northern limit of exploration [Howard falls]. . . . The most promising district is the country on the Kawa-kash-kagama river below the Wawong portage. Here Huronian [Keewatin] exposures are numerous, mostly chlorite and other soft green schists. Several samples from small quartz veins in this district showed traces of gold, and it might be that careful prospecting in this district would be rewarded".

W. J. Wilson of the Geological Survey of Canada also made a geological

reconnaissance survey[3] of part of this area in 1903-4, and his map[4] accompanying the report, which shows the water routes and geology, was very useful to the early prospectors. Robert Bell,[5] W. A. Parks,[6] A. H. A. Robinson[7] and others have described the canoe routes and geology on the western part of the accompanying map.

Up to the present time little attention has been given the Kowkash area by gold seekers, but part of the region was well known to some who prospected for iron on the Onaman iron range along Johnson creek. The iron first attracted the attention of the prospector in 1904, when engineers began the survey of the National Transcontinental railway through this area. R. Flaherty prospected on the range for two seasons, 1906-7, for the United States Steel Corporation, during which time much stripping and three diamond drill holes were sunk. However, the banded red jasper and magnetite and hematite proved to be of too low grade to be workable at that time. E. S. Moore[8] who spent part of two seasons in examining the range gives a detailed report on the geology and topography of this area.

From an economic point of view, gold is the chief interest in the region, at present.

Prospectors at the crossing of Johnson creek and National Transcontinental railway, September, 1915.

E. W. King Dodds made his discovery while walking over the rocky hill below Howard falls, which had been burned clean of moss and trees on the previous day. The news of the rich find caused a rush of about four hundred prospectors to the neighborhood, and 75 or 100 claims were staked within three weeks.

At the time of the writer's second visit at the end of October, no further discoveries had been made in the vicinity of the original find, around which centred

[3] Geological Reconnaissance of a portion of Algoma and Thunder Bay Districts, Geol. Surv. of Can., 1909, pp. 1-45.

[4] Map No. 964, scale 8 miles to inch. Geol. Surv. of Can., 2nd Edition, 1911.

[5] Geol. Surv. of Can., 1866-69, p. 344.

[6] Geol. Surv. of Can., 1901, Vol. XIV, pp. 105-109. A: Vol. XV, 1902, pp. 213-222.

[7] Report of party No. 6, on Survey and Exploration of Northern Ontario. Department of Crown Lands, 1900, pp. 162-172.

[8] Ont. Bur. Mines, Vol. XVII, 1908, pp. 170-189; Vol. XVIII, 1909, pp. 196-253.

the early staking. This was the magnet, however, that drew the prospectors to the locality, resulting in newer finds farther to the south and west. Two gold discoveries have been made farther up the Kawashkagama river, about three miles north of Kowkash station, on the Richardson and Dawson claims. Gold and a telluride have also been found on the Devanney claim near Tashota, 22 miles west of Kowkash, towards the western side of the Keewatin area. In the latter region as much staking has gone on as around the Dodds property. Gold values were obtained near Redmond station at mileage 54.3, from a quartz vein on O'Sullivan lake and other places. Mile posts are marked on telegraph poles along the line of railway west from Grant, a divisional point.

Over 1,000 claims have been staked mainly around Tashota, adjacent to the Dodds discovery, and in the vicinity of the railway between Kowkash and Tashota stations. Nearly 500 claims were recorded at the Port Arthur office up to November 11th, 1915. At the end of October there were about 100 prospectors still in the area.

Topography

The country has an average elevation of about 1,000 feet above sea level with no great variations in level. There is not a difference of more than about 150 feet between the highest hills and lowest valleys. The most prominent hill seen lies about four miles southwest of O'Sullivan lake.

The continental divide, separating the waters of the great lakes from those of Hudson bay, runs in a tortuous course through the region; but nowhere is it conspicuous as a ridge. A large swamp with streams emerging from either side often forms the watershed. A boss of red granite, three miles wide occurs at the divide, altitude 1,118 feet, at Redmond. Towards the northwest of the sheet is Summit lake, a shallow, muddy lake, three miles long by one mile wide, which discharges water both ways, the stream flowing northward towards the Albany being nearly as large as the southern outlet. The country northeast of the height of land is drained largely by the Kawashkagama river, a branch of the Albany.

The average magnetic declination for the area embraced by Map 25a is about one degree west of north.

Following is a brief resumé of the geology and a description of the several gold prospects.

General Geology

The Kowkash area presents pre-Cambrian rocks similar to those found elsewhere in northern Ontario. They are dominantly of Keewatin age, with some Timiskaming sediments and later intrusions of feldspar porphyry, granite and diabase. The younger formations can be separated when the area is mapped in detail. The above rocks cover an area of 600 or more square miles, which is worthy of further prospecting. Surrounding this region are rocks of Laurentian, Keweenawan and Paleozoic age.

Keewatin

The Keewatin consists chiefly of massive fine-grained chlorite and hornblende rocks which are in places altered to schists, and which have a nearly vertical dip. Among these rocks are altered diabase, altered basalt showing pillow or ellipsoidal structure, agglomerate and rusty carbonate, so much altered that microscopic examinations are unsatisfactory.

A considerable amount of Iron Formation occurs on the Onaman river range, the location of which is taken from E. S. Moore's map.

Cutting the greenstones and closely associated with the Iron formation are narrow dike-like masses and flows of quartz-porphyry or rhyolite. Exposures may be seen at many places, chiefly around O'Sullivan lake, Howard falls, Onaman river range and Tashota station. The porphyry contains numerous white quartz phenocrysts, the size of peas, and some feldspar phenocrysts, in a fine-grained, greenish-white groundmass. The porphyry also contains some quartz strangers, is schistose in places and resembles the quartz porphyry at Porcupine, Goose's lake and Big Dogs lake (north of Sudbury). A sample from the Dodds' claim, which was examined microscopically showed large, rounded, angular and broken quartz grains, and albite phenocrysts, partly altered to sericite. The crystalline groundmass consists of quartz, feldspar, sericite, calcite and a little chlorite. E. S. Moore noted tourmaline in the rhyodite porphyry from near Castor lake.

On the Kawashegamuk river at the last portage into O'Sullivan lake is an actinolite rock, which with much are numerous serpentine exposures.

Laurentian ?

Granite and gneiss, possibly of Laurentian age, are shown on the map, but these may include some granites of later age. Much of the gneiss is similar to the Laurentian gneiss in other parts of the old Canadian shield. A. W. G. Wilson notes that the acidic greenstone rocks in the Summit Marshall lake region occupy a very noticeable position between undoubtedly Keewatin and undoubtedly Laurentian.

Timiskamian

Conglomerates and slates apparently similar to the Timiskamian sediments on Porcupine and Kenilworth lake are found about two miles below Howard falls and the claim Hoard's west along the Kawashegamuk river. These slates contain 65 feet and a conglomerate half. The pebbles of the conglomerate are rounded and drawn out, and consist of chert, quartz-porphyry, and granitoid basalt and granite-gneiss. The conglomerate is separated on the north by a few feet of drift from a large exposure of yellow lava. Slates standing vertically can be seen at mileages 50.3, 51.3, 53.6 and elsewhere in the area. E. S. Moore has mapped a few exposures of tuff and conglomerate with the Keewatin.

Algoman ?

Cutting these rocks are post-Keewatin masses of granitic rocks, especially of Algoman age. A quartz-porphyry is seen at the water tank at Tashota station, above under the microscope shows quartz, albite, muscovite and biotite. A large amount of granite from underneath forms the bed of land, altitude 1,148 feet, at Redwood. It contains microcline showing the cross-hatching structure, albite, well twinned, quartz and biotite partly altered to chlorite. Some of the quartz-porphyries may be Algoman in age, perhaps from the dikes of such masses. The Gibbins porphyries are dikes. A [illegible] was [illegible] earlier.

See Vol. 24, Pt. III, Ont. Bur. Mines, 1915.
See Vol. 24, Pt. II, Ont. Bur. Mines, 1915.
See Vol. 24, Pt. I, Ont. Bur. Mines, 1915, p. 9-13.
Geology of Nipigon Basin, Ontario, Memoir No. 1, Geol. Surv., Can. 1913, p. 32.

Keweenawan

Quartz diabase dikes occur in many parts of the area. Exposures may be seen at mileages 50.3, 50.5, and 56.7 west of Grant station. Large exposures of diabase also occur south of Tashota, and also about 300 yards north of the Doctor's gold find. The only reason for placing these rocks in the Keweenawan is that they are similar in every respect to the Keweenawan diabase at Cobalt and in the Nipigon region. W. J. Wilson notes that the diabase is common in both the granites and schists and does not contain olivine.

Large areas of diabase occur around Lake Nipigon.[illegible] The occurrence of silver associated with the diabase at Silver islet and Silver mountain, 150 miles to the northwest, suggests [illegible] areas of silver.

Glacial and Recent

[illegible] movement having been from [illegible] over the height of land in a general south-55°-west direction.

The area lies near the western edge of the northern Ontario clay belt, which has an extent of about 25 [illegible] miles, and is covered with clays with stratified

[illegible]

[illegible]

Economic Geology

[illegible]

Iron

The iron occurs on the Onaman iron range, which was examined in detail by E. S. Moore in 1907 and 1908. He found the iron formation to occur in two bands, called the northern and southern ranges, the former extending for nine miles and the latter three miles in an east and west direction. The formation is composed largely of red jasper, often well banded, and magnetite. There are considerable deposits of these minerals, but they are interbanded with much slate and some greywacké.

Gold

Quartz veins carrying gold values in parts of the area have been known for some time, particularly from the Cross-Summit lake area. A. H. A. Robinson, in 1900, obtained an assay return of 80 cents per ton from a vein on the west shore of Summit lake. Another sample on the Lily river, two miles from Summit lake yielded $2.80 of gold per ton.[14] W. A. Parks reports an assay value of $1 per ton in gold from a sample from Cross lake.[15] In 1900 E. V. Neelands obtained traces

Photo by E. S. Moore.

Flaherty's diamond drill prospecting for iron, Onaman iron range.

of gold from several samples collected along the Kawashkagama river above Howard falls.

Dodds' find in 1915 led to others, particulars of which are given below. The prospectors are still busily engaged in the region but enough prospecting has not yet been done to prove the prospects.

Other Minerals

A boulder of pyrite, about three feet across, was reported from a point about two miles northwest of Paska station.

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[14] [illegible] Exploration of Northern Ontario, Dept. of Crown Lands, Ont., 1900, p. 10[illegible]

[15] [illegible] Natural Resources of the Northeastern Nipigon District, Geol. S[illegible] Can., M.S. [illegible]

A few specks of native copper were seen in quartz veins near the Tashota gravel pit.

No silver was present in the several samples which were assayed.

Other Resources

The trees are mostly second growth and consist of small spruce, poplar, balm of gilead, pine, birch and cedar, along the rivers occasionally attaining a diameter of two feet. On the whole, these are suitable for pulpwood and locally for ties, posts and small timber. Large areas have been recently burned. The east boundary of the Nipigon forest reserve, which is not surveyed, is approximately shown on the map.

Small tracts of the country are suitable for agricultural purposes.

Photo by W. J. Wilson.

Speckled trout 16" to 20" long; Albany river waters, Kowkash region.

Whitefish, pickerel, pike, suckers and brook trout are plentiful in these waters. The rapids on the Kwestiosagama river and the numerous brooks entering the river are famed for the speckled trout, some of which are two feet in length.

Many small undeveloped water powers occur on the rivers. Howard Falls on the Kwestiosagama river [illegible] Pine rapids [illegible]. The 100-foot fall [illegible] is caused by a [illegible] through which the river [illegible] [illegible] [illegible] feet long. W. J. Wilson notes that the [illegible] from twenty to thirty feet deep and the water descends in steps and slides [illegible] from one to five feet.

Description of Gold Claims

The main properties visited are described as follows:

Dodds

The original gold find which caused the rush to the area was made on the Dodds' claim, T.B. 2424, about three-quarters of a mile east of Howard falls, on the Kawashkagama river. The quartz vein strikes 10° south of east and dips 75° to the north, thus conforming in strike and dip with the country rock. On the surface, the vein which is one to five inches wide, averages three inches in width. The quartz is somewhat glassy in appearance and largely free from sulphides. An abundance of free gold occurred for four or five feet along the hanging wall part of the vein. On the north side of the vein is a rusty schist band, six inches wide

Howard falls, Kawashkagama river

which is heavily impregnated with iron pyrites. The wall rock is pillow lava (meta-basalt) altered in places to schist. Numerous quartz porphyry dikes up to thirty feet wide occur on the claim.

The claim was optioned by T. B. Caldwell, of Lanark, Ontario, and Messrs. Fraser and Orn. On October 23rd the vein had been stripped for 100 feet, exposing two specks of gold towards the western end, and a 14-foot pit had been sunk. In sinking, the showing of free gold disappeared in a few feet. At the bottom of the shaft the vein is two inches wide with a foot of pyritous schist on the foot wall, but no gold was visible. A channel sample across twelve inches of the pyritous schist from the bottom of the shaft gave an assay $2 in gold. Work was suspended early in November. It is reported that arrangements have been made to sink a 150-foot shaft.

Richardson-Loudon-Ogilvie

During the first week in October, 1915, gold was found on Claim T.B. 2599, near the first rapids on the Kawashkagama river below the junction of Johnson creek. The quartz vein is narrow, averaging about two inches in width over a length of 200 feet. The vein strikes south 85° east and dips about 70° to the south. The rock is Keewatin pillow lava, and near the vein is a biotite granite dike 6 feet wide. Coarse gold could be seen in 6 or 7 places along the vein, and pyrite is also present. Rock outcrops in this vicinity are scarce, but further trenching may reveal larger auriferous quartz veins.

Dawson

About two miles northwest of the Richardson claim across sand plains and intervening swamps is the Dawson claim, T.B. 2620, where gold was reported to have been found about October 22nd, 1915. The quartz vein strikes north and south for 100 feet and dips about 60° to the east. The vein is lenticular and will average about one foot in width. Chalcopyrite, pyrite and chalcocite are disseminated throughout the rusty quartz. The country rock is a massive, green, altered Keewatin diabase.

Devanney

On account of obtaining visible gold and high assays from the Devanney claim, near Tashota, 22 miles west of Kowkash station, as much staking has gone on around Tashota as around the Dodds' property.

The Devanney claim, T.B. 2650, lies about one and a quarter miles north of Tashota station on the northwest shore of Tashota lake. The vein strikes south 60° east and dips from 50° to 70° to the southwest. The vein is lenticular varying from a few inches up to four feet in width, and having an average width of a foot or more. It can be traced intermittently for about 600 feet. The quartz is milky, in places rusty, and contains a little fine gold, a telluride in considerable amount, also pyrite and pyrrhotite. A polished surface of the ore shows that there are probably three tellurides present. Three pieces of quartz containing a small amount of the tellurium mineral gave $27.60 in gold to the ton. The wall rock is a Keewatin greenstone consisting of chlorite, calcite and quartz. Quartz porphyry dikes occur on the claim and in the vicinity. The little trenching that has been done shows the prospect to be an interesting one.

McFarlane-Manion

At mileage 51.3 west of Grant, or four miles east of Redmond on the north side of the track on claim T.B. 2722, is a quartz-calcite vein, two to ten feet wide in a Keewatin greenstone which is said to extend across several claims in an east-west direction. Mr. McFarlane has sunk a pit 11 feet deep on the vein where it strikes south 70° east and dips 70° to the north. A one-half inch vein of galena occurs near the foot wall. Chipped samples for assay taken in three sections with a geological hammer across the vein at the bottom of the pit gave as follows:

No. 1. 1½ ft. hanging wall part of vein, gold none; silver none.

No. 2. 3½ ft. centre of vein, gold $1.20; silver none.

No. 3. 1½ in. foot wall part of vein, containing galena, gold $6.00; silver none.

Conclusions

The Kowkash area, comprising 600 or more square miles, is similar geologically to other northern Ontario Keewatin areas, for instance, Porcupine. In

these schistose rocks quartz veins are plentiful. Gold, at this early stage, is known to be widely distributed. The Dodds vein contained a small rich pocket of ore, and the Devanney vein carries a telluride in addition to gold. Enough work has not been done to prove that the gold occurs in paying quantities. Prospecting is somewhat difficult in places on account of the heavy overburden, while other parts are rocky and burned. The transportation facilities are excellent on account of the railway and splendid waterways. The area is worthy of thorough prospecting, which it undoubtedly will receive during the coming summer. Besides gold, the prospector should be on the lookout for iron ore and pyrite.

In concluding, the writer wishes to express his thanks to W. R. Rogers, topographer, and P. A. Jackson, for the preparation and production of the map.

The assays were made by W. K. McNeill and T. E. Rothwell of the Provincial Assay Office.

PROVINCE OF

GEOLOGICAL NOTES

Hon. G. H. Ferguson, *Minister.*

Gold Veins

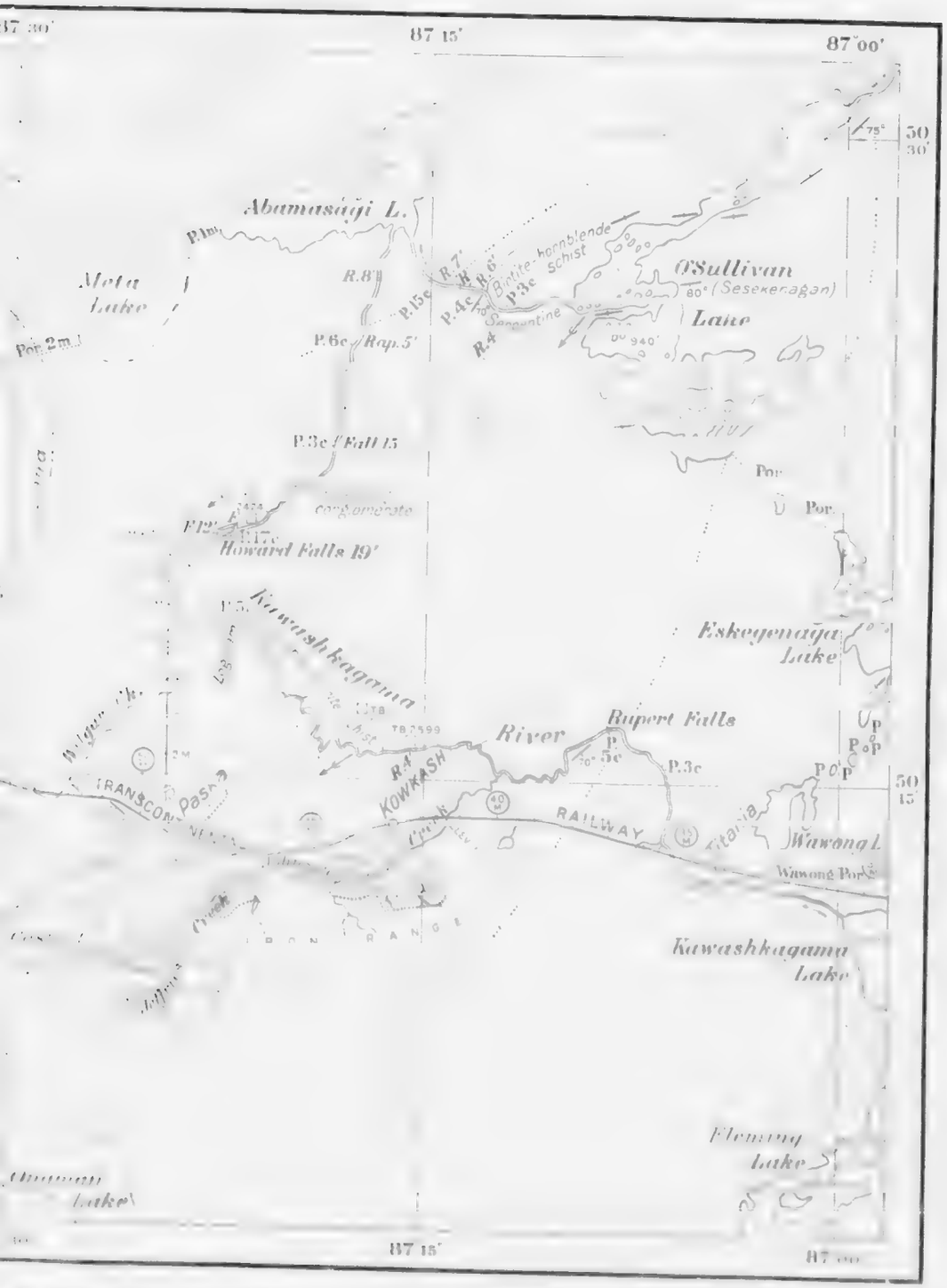
Mining Claims

MAP No. 2

KIDWKASH

OVINCE OF ONTARIO

r. Willet G. Miller, *Provincial Geologist.*



AP No. 25a

LEGEND

PRE-CAMBRIAN

Algoman?

Red [illegible]

Laurentian?

[illegible]

Keewatin

Quartz Porphyry or Rhyolite

Iron formation

Chlorite-mica, agglomerate, hornblende and chlorite schist, diabase and [illegible]

Note. Included with the K[illegible] Keweenawan diabase which [illegible]

Symbols

Glacial Striæ

[illegible]

[illegible]

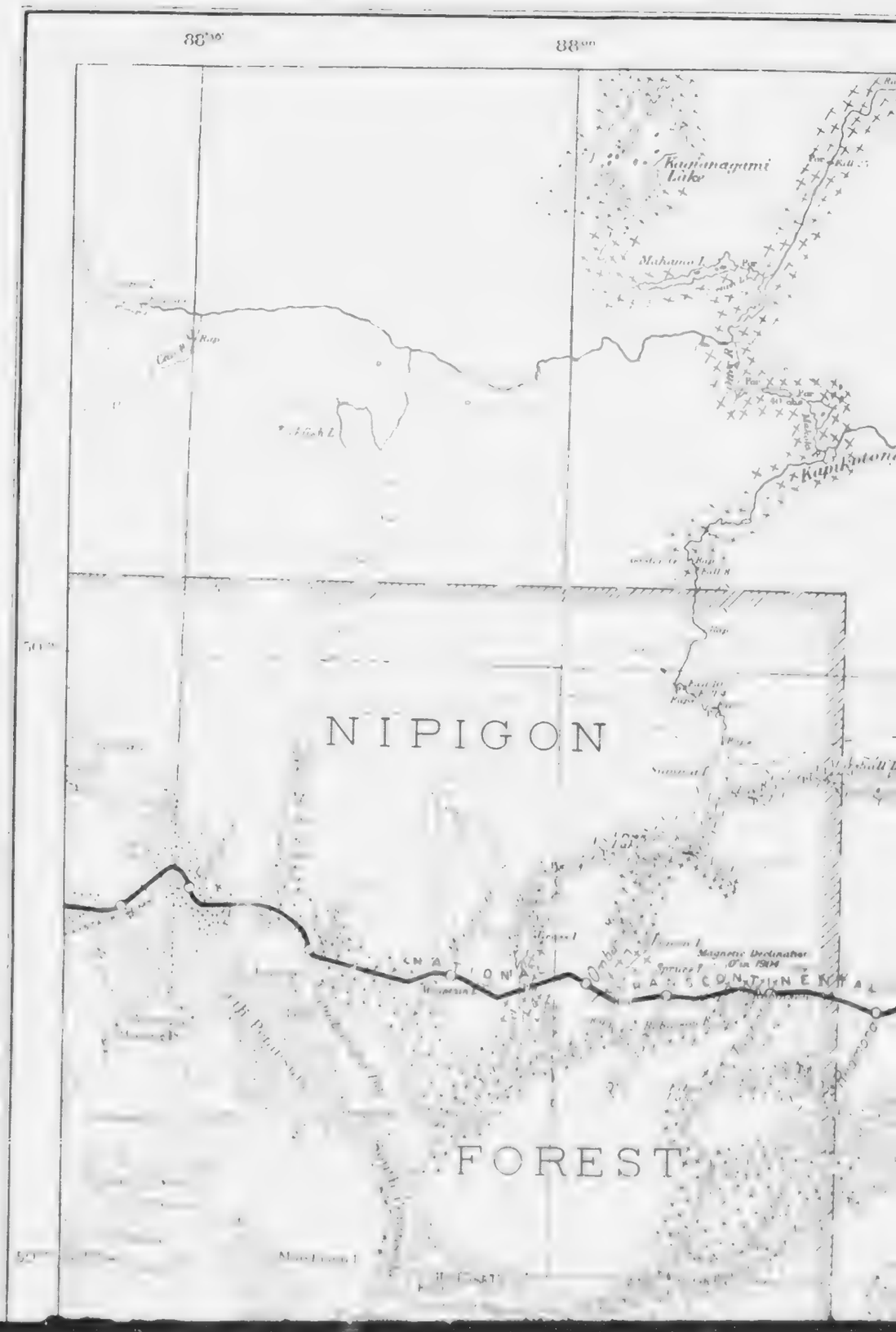
Notes: [illegible] Railway mile posts are numbered from Grant westerly, Grant being 254 [illegible]

Sources of Information

[illegible]

L GOLD AREA

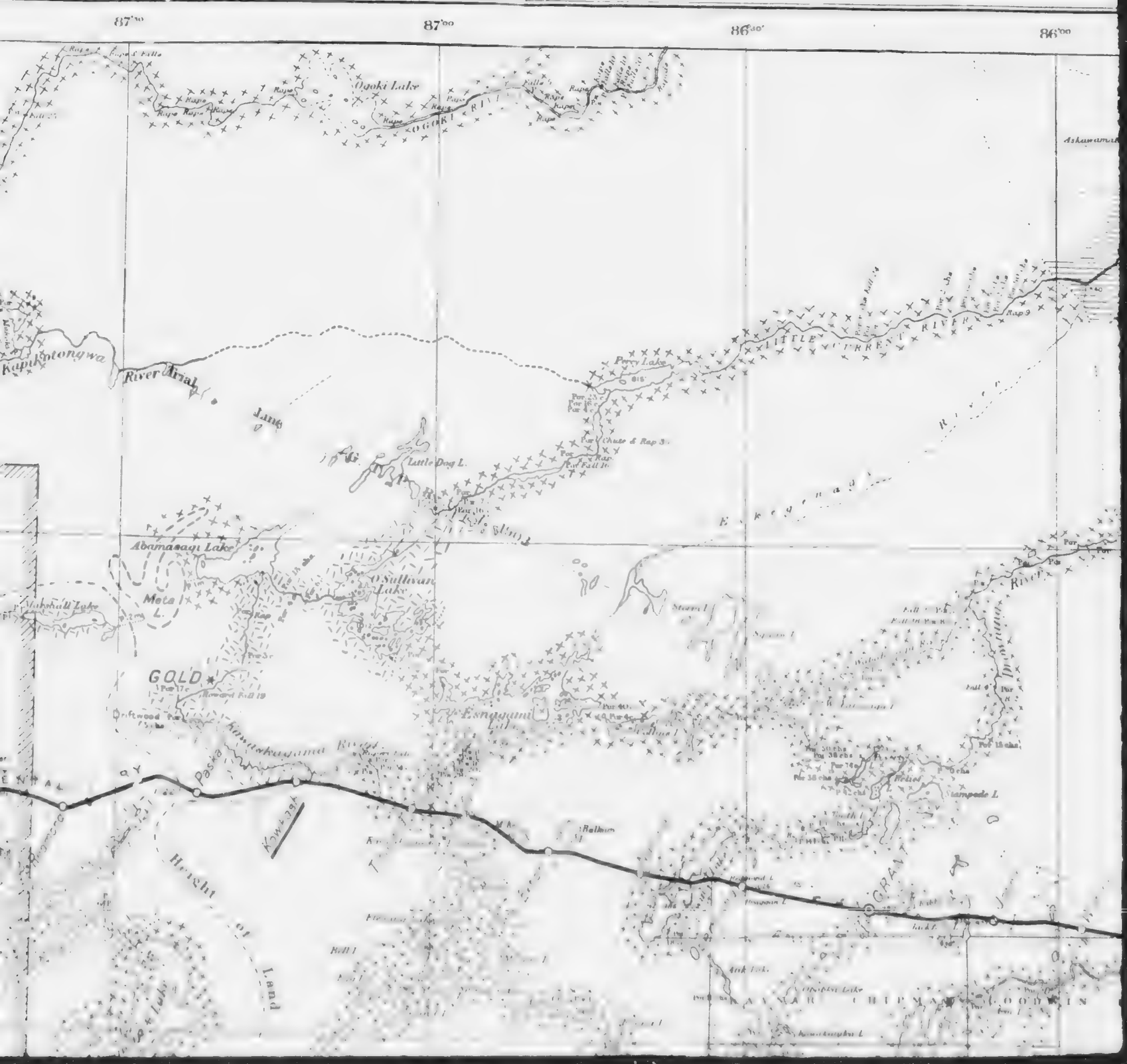
GEOLOGICAL NOTES



Gold Veins

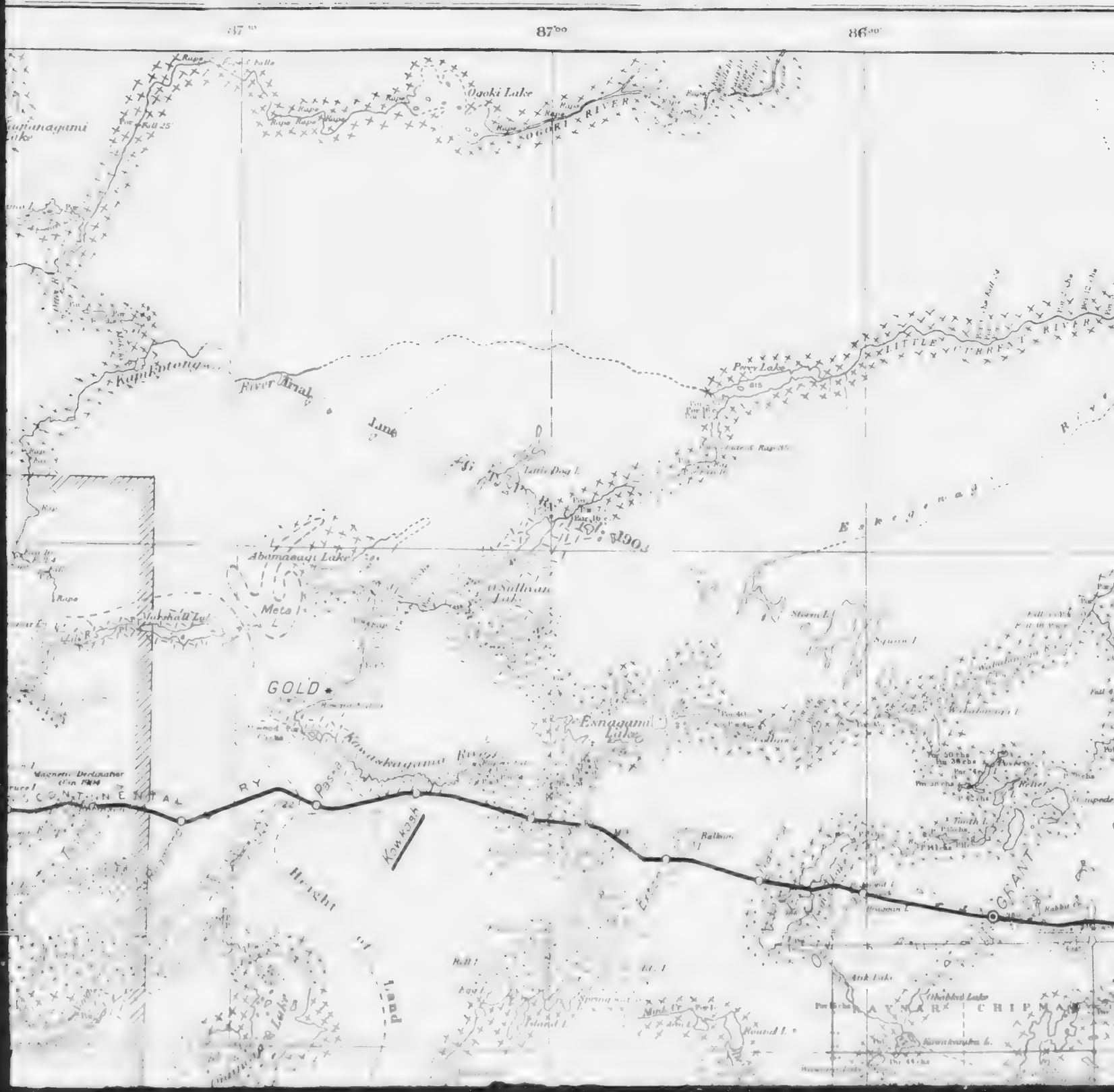
PROVINCE OF ONTARIO

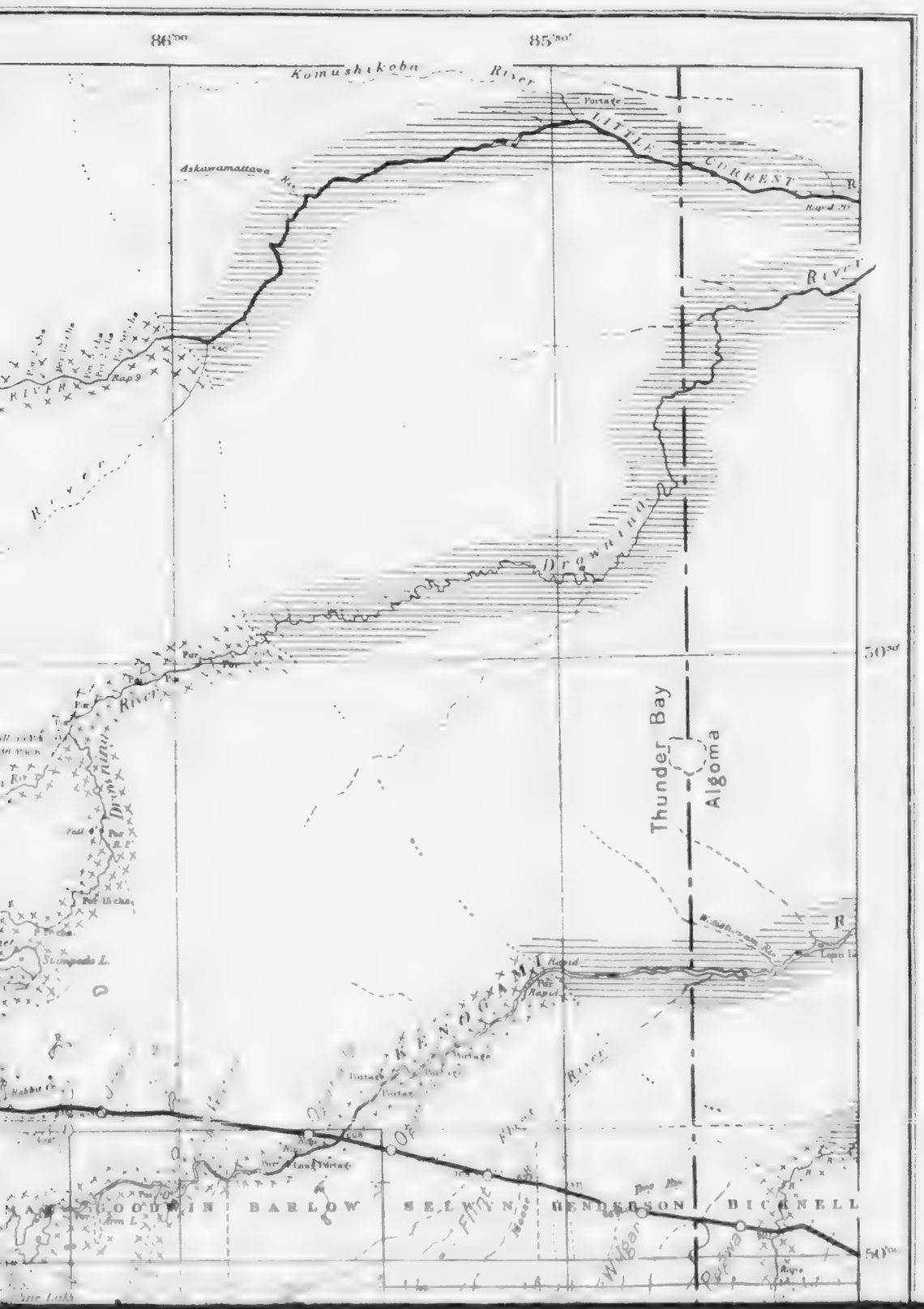
Hon. G. H. Ferguson, *Minister.* Willet G. Miller, *Provincial Geologist.*



PROVINCE OF ONTARIO

Hon. G. H. Ferguson, *Minister.* Willet G. Miller, *Provincial Geologist*





LEGEND

- Paleozoic
- Keweenawan
- Laurentian
- Keewatin

SOURCES OF INFORMATION

Topography:

Geology:

Gold Veins

Mining Claims

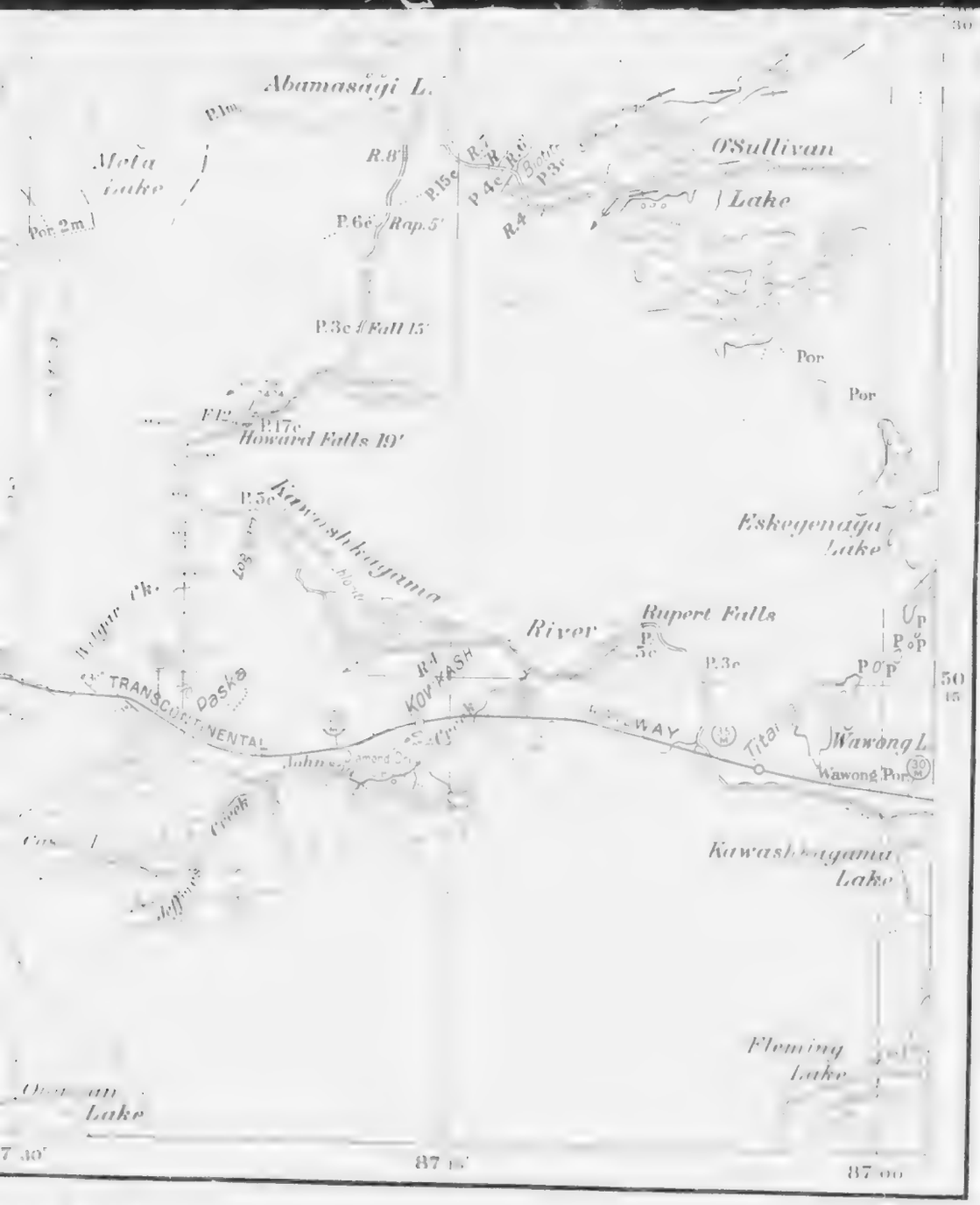
MAP No.

KOWKASH

DISTRICT OF THU

To accompany Part I, Volume 25, Report

Scale, 4 Miles



MAP No. 25a.

I HOLD AREA

OF THUNDER BAY

25, Report of Ontario Bureau of Mines, 1916

4 Miles to 1 Inch

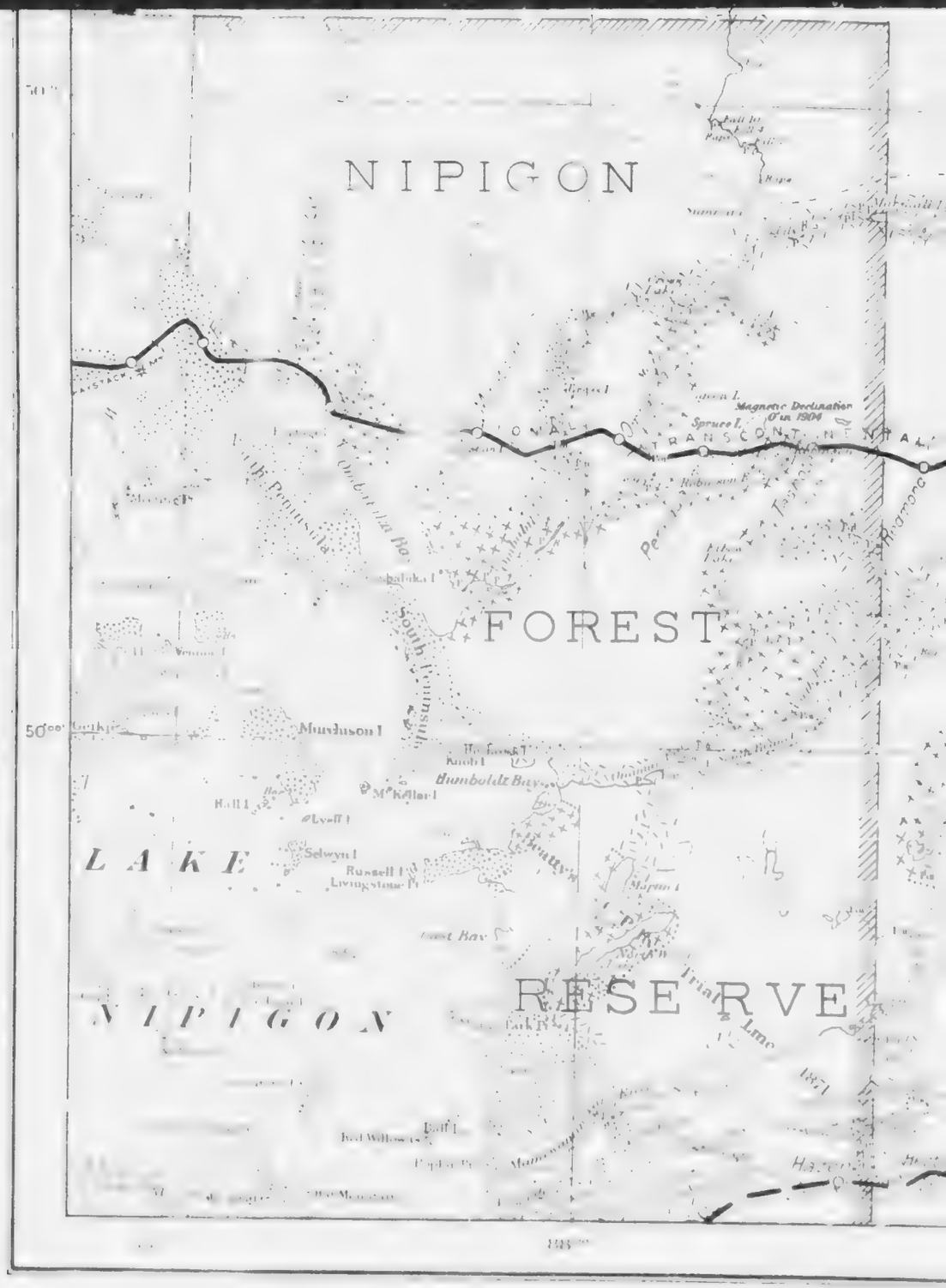
Laurentian?

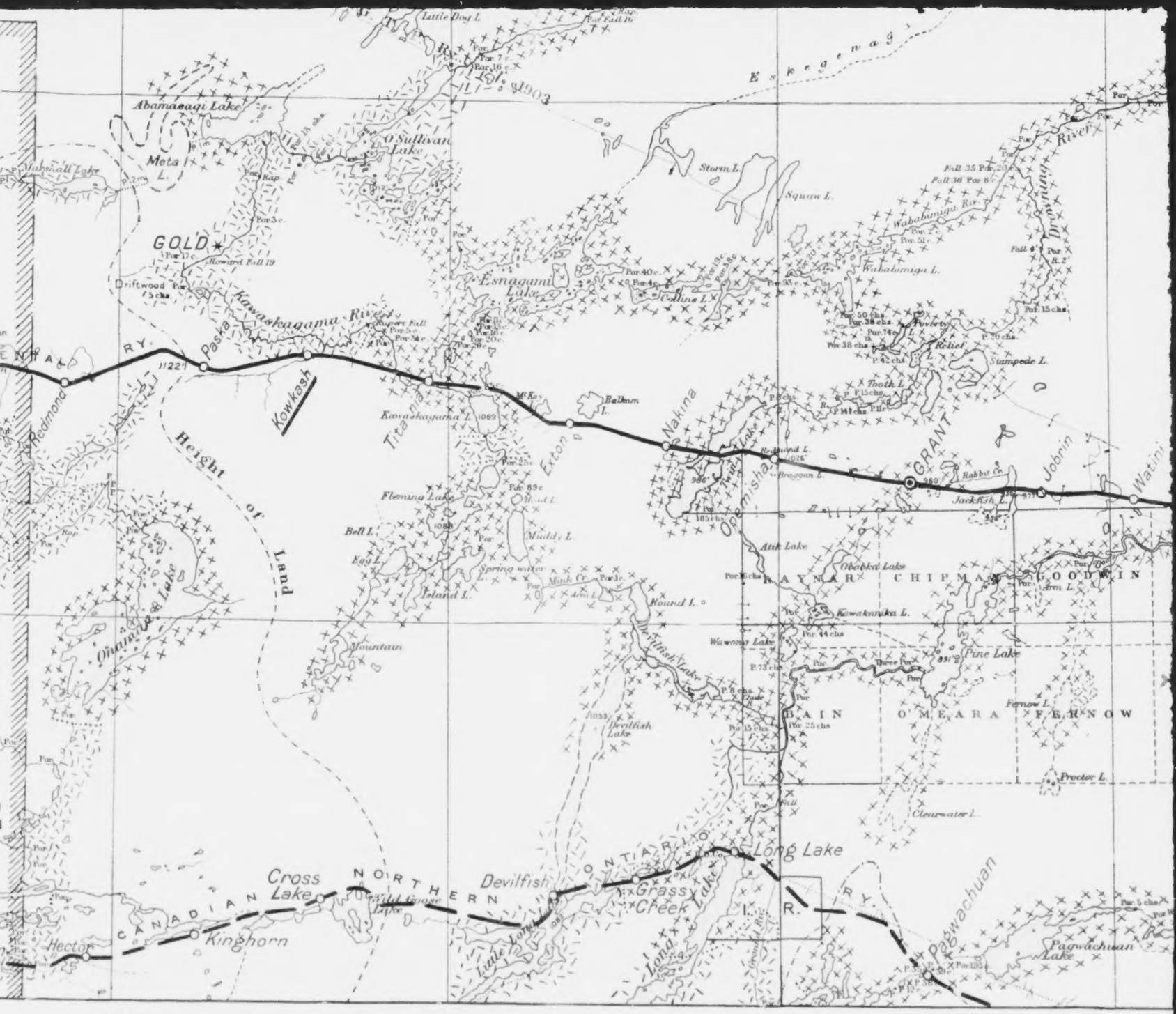
Keewatin

Symbols

Sources of Information

Gold Veins


NIPIGON
FOREST
RESERVE
LAKE
NIPIGON
Magnetic Declination
Spruce I.
Munduson I
Humboldt Bay
McKellar I
Selwyn I
Russell I
Livingstone Pt
Trial Line
1871
50°00'



MAP No. 24c.

PART OF THUNDER BAY DISTRICT

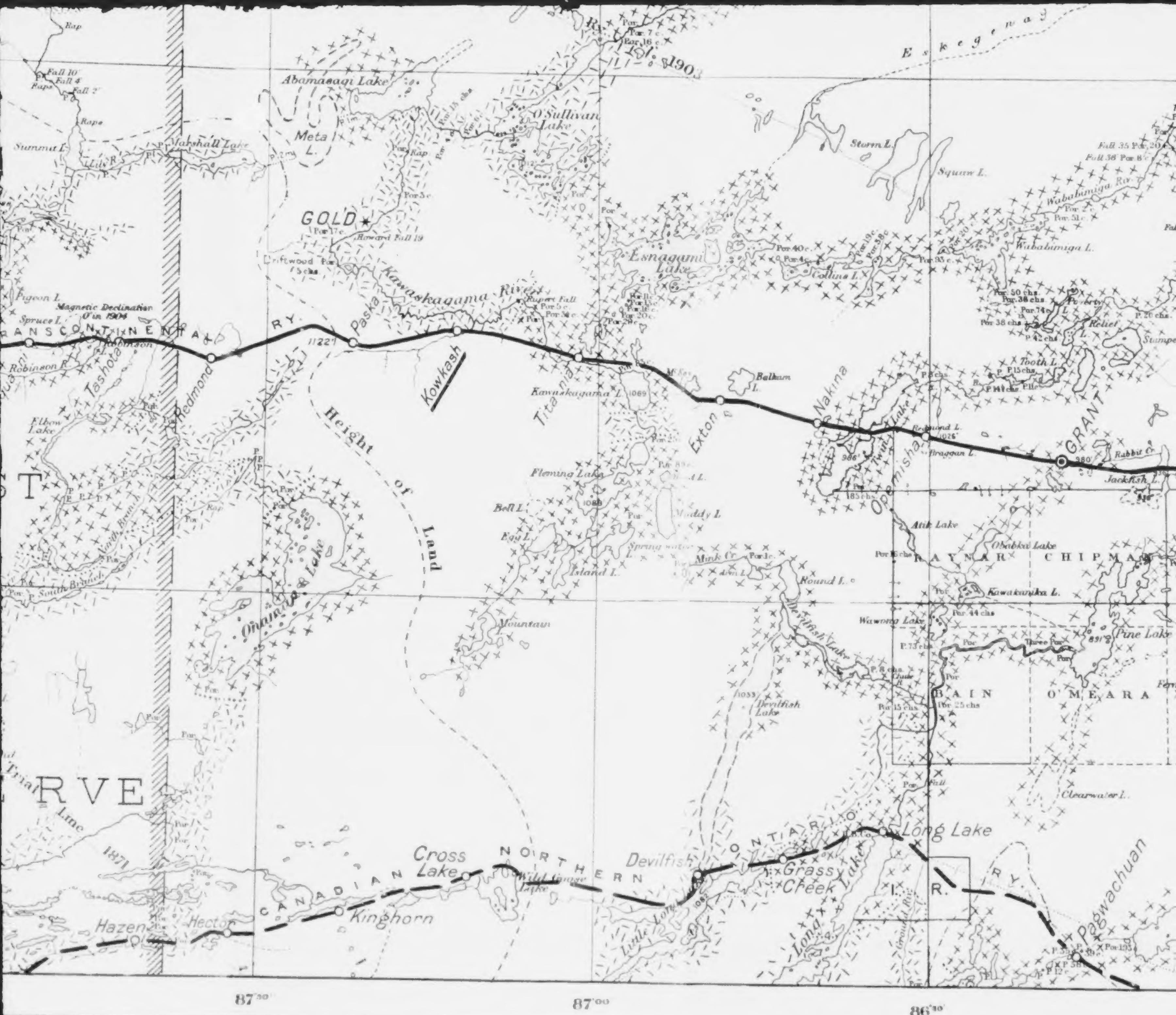
showing the

KOWKASH GOLD AREA

To accompany Part I, Volume 24, Report of Ontario Bureau of Mines, 1915.

Scale. $\frac{1}{500,000}$ = 7·89 Miles to 1 Inch

0 10 20 40 Miles



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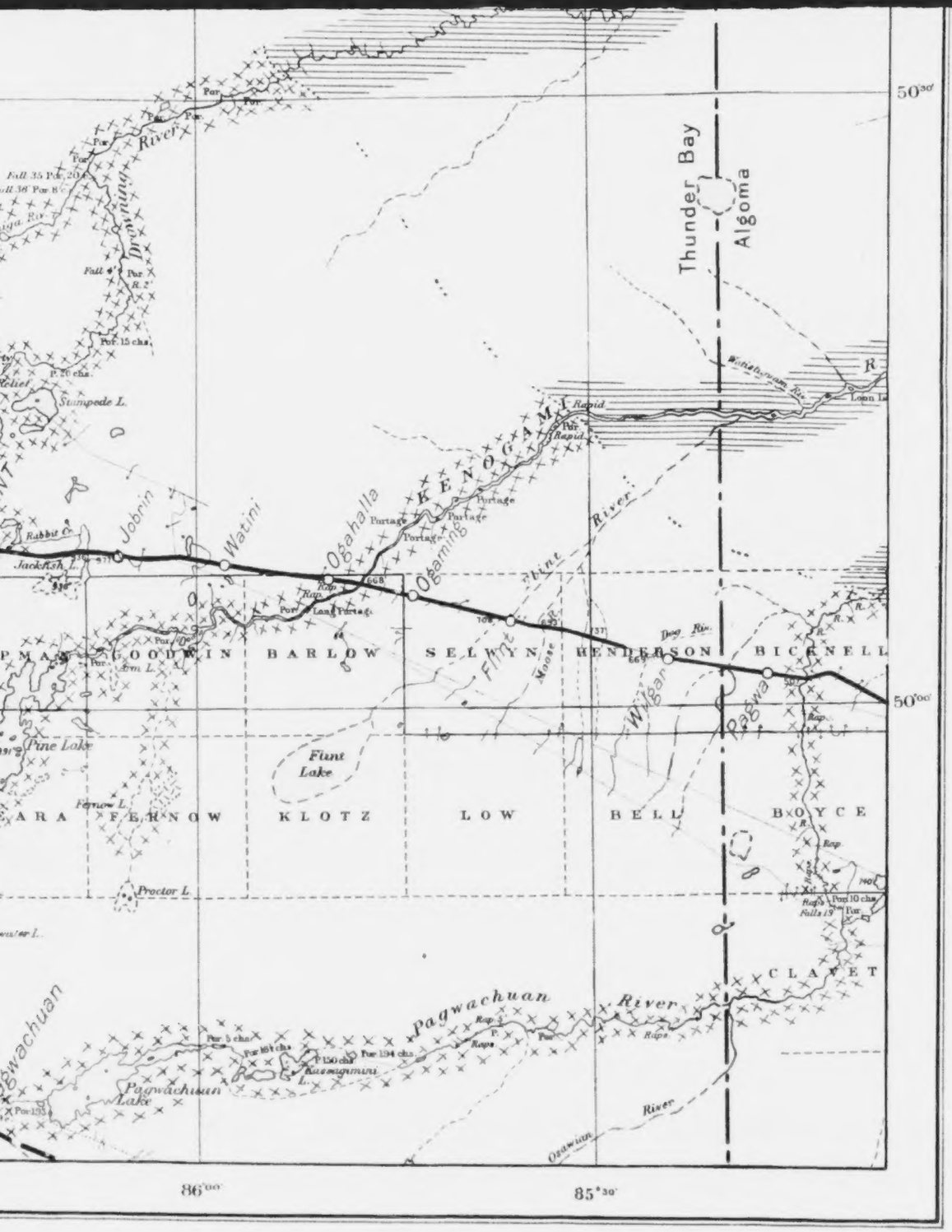

Flat lying limestones of Silurian age.

Keweenawan

Diabase with small areas of sandstone, conglomerate and impure dolomite.

Laurentian

Granite and gneiss.

Keewatin

Diabase, gabbro, hornblende and chlorite schists, quartz porphyry, serpentine, etc.

SOURCES OF INFORMATION

Topography:

Base map from Standard Topographic Sheets, Department of the Interior, Ottawa.

Geology:

Report, Geological Survey of Canada, 1870-71.

Report, Exploration of Northern Ontario, Department of Crown Lands, 1900.

Map No. 964, Geological Survey of Canada, Second Edition, 1911.

Additions by P. E. Hopkins, 1915.

CA2ON
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